MECHANICS.

—

236. Proposed by G. B. M. ZERR, A. M., Ph. D., Philadelphia, Pa.

A simple beam length $2a$, supported at the ends, is loaded with c pounds per running foot at the ends and increases uniformly to the center, where it is b pounds per running foot. Find deflection at center due to this load.

237. Proposed by C. N. SCHMALL, 604 East 5th Street, New York.

In a naval action an officer observes that in the case of two guns firing, at elevations a and β, respectively, the projectile of the former falls a feet short of the target while that of the latter lands b feet beyond. The initial velocity being the same in both cases, prove that the *true* elevation is

$$\tfrac{1}{2}\sin^{-1}\left[\frac{a\sin2\,\beta+b\sin2\,\alpha}{a+b}\right].$$

(Suggested by problem 29, page 219, Jeans' *Theoretical Mechanics*.)

—

NUMBER THEORY AND DIOPHANTINE ANALYSIS.

—

168. Proposed by A. H. HOLMES, Brunswick Maine.

Find integral values for x, y, u and v from the following:
$$uv-xy=25x+29y+29u+29v-112.$$
$$3v-5u+5y-x=102.$$
$$4y-3v=419.$$

169. Proposed by R. D. CARMICHAEL, Princeton University.

Let $Q_n(x)=0$ be the equation whose roots are all the primitive nth roots of unity without repetition. In $Q_n(x)=0$ replace x by α/β, a fraction in its lowest terms, and clear of fractions. Let $Q_n(\alpha,\ \beta)$ represent the resulting first member. Set $n=mp$ where p is the largest prime factor of n. It is required to find all the integral values of α, β, m, p satisfying the following relations:

(1) $Q_{mp}(\alpha,\ \beta)=p,$
(2) $\alpha^m-\beta^m\equiv0 \pmod{p}.$

One such solution is: $\alpha=2$, $\beta=1$, $m=2$, $p=3$. (See MONTHLY, Vol. XII, p. 89.)

NOTES AND NEWS.

—

The next annual meeting of the American Association for the Advancement of Science will be held at Boston during the week beginning December 27. Titles and abstracts of papers intended for the section of Mathematics and Astronomy should reach Professor G. A. Miller, 907 West Nevada Street, Urbana, Ill., before December 15.

Professor G. H. Scott of Yankton College, S. D., is spending the present year at the University of Illinois as assistant in mathematics, and graduate student. M.

The American Mathematical Society decided to contribute 5000 francs towards the publication of the complete works of the noted Swiss mathematician, Leonard Euler. M

The following promotions and appointments for the present year to positions in Mathematics in colleges and universities will be of interest to the readers of the MONTHLY:

R. D. Carmichael to a teaching fellowship at Princeton University.

Dr. N. J. Lennes to an instructorship in the Massachusetts Institute of Technology.

Dr. F. L. Griffin to an assistant professorship at Williams College.

G. P. Paine, of Ripon College, to an assistant professorship at the Univessity of Minnesota.

Dr. W. R. Longley to an assistant professorship at Yale University.

Dr. C. N. Haskins to an associate professorship at Dartmouth College.

T. Hildebrandt to an instructorship at the University of Michigan.

Dr. A. L. Underhill to an assistant professorship at the University of Minnesota.

L. L. Silverman to an instructorship at Cornell University.

Dr. G. D. Birkhoff to an assistant professorship at Princeton University.

E. J. Moulton to an instructorship at the University of Wisconsin.

Dr. Thomas Buck to an instructorship at the University of Illinois.

Dr. Arnold Dresden to an instructorship at the University of Wisconsin.

Dr. C. L. E. Moore to an assistant professorship at Massachusetts Institute of Technology.

Dr. H. E. Buchanan to an instructorship at the University of Wisconsin.

Dr. J. H. Maclagan-Wedderburn to a preceptorship at Princeton University. S.

The American Federation of Teachers of the Mathematical and the Natural Sciences, at its meeting in Baltimore, December, 1908, authorized the appointment by its council of a committee of fifteen on a syllabus of geometry for secondary schools. A similar committee had been authorized by the Mathematics Section of the Secondary Department of the National Education Association at its meeting in Cleveland in 1908. It has been dedided that the same committee shall act under the joint auspices of the two national bodies. The membership of the committee is as follows: H. E. Slaught, chairman, Univeasity of Chicago: C. L. Bouton, Harvard Univer-

sity; Florian Cajori, Colorado College; H. E. Hawks, Yale University; E. R. Hardrick, University of Missouri; H. L. Rietz, University of Illinois; D. E. Smith, Teachers College, Columbia University; William Betz, East High School, Rochester, N. Y.; E. L. Brown, North High School, Denver, Colo.; W. B. Carpenter, Mechanics Arts High Suhool, Boston, Mass.; W. W. Hart, Shortridge High School, Indianapolis, Ind.; F. K. Newton, Phillips Andover Academy, Andover, Mass.; E. R. Smith, Brooklyn, N. Y. Polytechnic School; R. L. Short, Technical High School, Cleveland, O.; and Mabel Sykes, South Chicago High School, Chicago, Ill.

The committee is already at work, having resolved itself into three sub-committees of five members each, under the chairmanship of Professors D. E. Smith, E. R. Hedrick, and H. L. Rietz, respectively, for the study of the three phases: Logical considerations, lists of basal theorems, and exercises and applications.   S.

Among the important mathematical meetings in the near future are the following:

The Central Association of Science and Mathematics Teachers at the University of Chicago, November 26, 27, 1909.

The American Federation of Teachers of the Mathematical and the Natural Sciences at Boston during the holidays.

The American Mathematical Society, in connection with Section A of the American Association for the Advancement of Science, at Boston during the holidays.

The Chicago Section of the American Mathematical Society at the University of Chicago December 31, 1909, January 1, 1910,

The Southwestern Section of the American Mathematical Society at the University of Missouri in the Thanksgiving recess.

B. F. Finkel will address the Southwest Section of the Missouri State Teachers' Association on November 26, on "The Teaching of Mathematics for College Entrance."